PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of

Claire-Sabine RANDRIAMASY

Appln. No.: 09/882,018

Confirmation No.: 8810

Filed: June 18, 2001

Docket No: Q64966

Group Art Unit: 2686

Examiner: Willie J. DANIEL, Jr.

For: METHOD OF OBTAINING A GEOGRAPHICAL REPRESENTATION OF THE TRAFFIC IN A MOBILE RADIO NETWORK

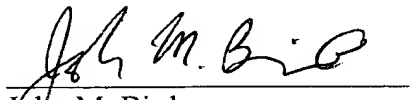
SUBMISSION OF APPEAL BRIEF

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Submitted herewith please find an Appeal Brief. A check for the statutory fee of $500.00 is attached. The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account. A duplicate copy of this paper is attached.

Respectfully submitted,



John M. Bird
Registration No. 46,027

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE
23373
CUSTOMER NUMBER

Date: March 10, 2005

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For: METHOD OF OBTAINING A GEOGRAPHICAL REPRESENTATION OF THE TRAFFIC IN A MOBILE RADIO NETWORK

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

MAIL STOP APPEAL BRIEF - PATENTS
Commissioner for Patents
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Sir:

In accordance with the provisions of 37 C.F.R. § 41.37, Appellant submits the following:

Table of Contents

I. REAL PARTY IN INTEREST

Based on information supplied by Appellant and to the best knowledge of the Appellant's legal representative, the real party in interest is the assignee, ALCATEL, by virtue of an Assignment recorded on June 18, 2001 at Reel 011918, Frame 0792.

II. RELATED APPEALS AND INTERFERENCES

There are no other related appeals or interferences known to Appellant, Appellant's legal representative, or assignee which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending Appeal.

III. STATUS OF CLAIMS

Claims 1-5 are all of the pending claims. Claim 1 is the only independent claim.

Claims 1-5 are rejected under 35 U.S.C. 102(e) as being anticipated by Vasudevan et al. (US 6,539,221).

IV. STATUS OF AMENDMENTS

The Examiner has entered the Amendment under 37 C.F.R. § 1.116 filed October 8, 2004. Therefore, all amendments to the claims, which have been made during the prosecution of the present application, have been entered.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

The claimed subject matter is a method of constructing a representation of the geographical distribution of traffic for a cellular radio network. The claimed invention is described with respect to the *exemplary* embodiments described in the present specification.

An individual cell of a cellular network is a geographical area in which all, or substantially all, of the mobile terminals are connected to the same base station. *See* Specification at 1:22-24. Because cells can be made up of both areas of high traffic and areas of low traffic, an overall traffic value for an entire cell can be of little value. Therefore, it can be beneficial to obtain a representation of the geographical distribution of traffic for the cellular network by determining traffic values for divided areas of each cell.

According to the claimed method, each cell is divided into areas z_1- z_9 using information on the handovers obtained from the cellular network. For example, in the exemplary embodiment shown in Figs. 3 and 4, the handover boundaries HOS_2 - HOS_5 are used to divide the cell C_1 into areas z_1- z_9. *See* Specification at 6:11-16.

Then the traffic value of each of the areas z_1- z_9 is determined. For example, in the exemplary embodiment, the traffic value λ_1- λ_9 for each of the areas z_1- z_9 of the cell C_i is determined based *inter alia* on the handover probability associated with that area. For example, the traffic value λ_1- λ_9 for each of the areas z_1- z_9 of the cell 1 is determined based on the number of handovers HO (1, 2) from the cell C_1 to a cell C_2, as well as empirically determined relatively high probability factor α_1 and relatively low probability factor α_2. See Specification at 8:4-28. The relatively high probability factor α_1 is used with the areas adjacent to the cell C_2, while the relatively low probability factor α_2 is used with the areas not adjacent to the cell 2. *See* Specification at Fig. 4 & 8.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1-5 are rejected under 35 U.S.C. 102(e) as being anticipated by Vasudevan et al. (US 6,539,221).

VII. ARGUMENT

As noted above, claims 1-5 stand rejected under 35 U.S.C. 102(e) as allegedly being anticipated by Vasudevan. It is respectfully submitted that claims 1-5 are patentable over Vasudevan for the following reasons.

Claim 1-3 and 5 are not anticipated by Vasudevan

With respect to independent claim 1, Vasuden does not teach all of the claim's recitations. For example, Vasudevan does not teach the claimed method of constructing a representation of the geographical distribution of traffic for a cellular radio network including dividing each cell of said cellular network into a set of areas using information on handovers obtained from said cellular network, determining a traffic value for each of said areas, and determining a representation of the geographical distribution of the traffic from said traffic values.

Specifically, neither Vasudevan's bins nor Vasudevan's sectors can correspond to the recited "areas."

Bins

As an initial matter, Vasudevan's bins cannot correspond to the recited areas. In Vasudevan's wireless network, the cells are divided into "bins" of a fixed size. For example, these bins can be 100m x 100m. *See* (for example) Vasudevan at Fig. 3. The bins are then classified based on several factors, including handovers boundaries (*See* Vasudevan at 3:11-29) and traffic (*See* Vasudevan at 4:32-53).

However, Vasuden's cells are not divided into bins "using information on handovers obtained from the cellular network." Instead, the cell is first divided into the bins, and then the

bins are merely classified based in-part on handover information. As such, Vasudevan's "bins" cannot correspond to the recited "areas."

Sectors

Moreover, Vasudevan's sectors cannot correspond to the recited areas. Although Vasudevan discloses that the cells of the cellular network can be divided into sectors, there is no disclosure that Vasudevan's cells are divided into sectors "using information on handovers obtained from said cellular network." *See*, for example, Vasudevan at Fig. 23a-c & 12:36-48.

Also, Vasudevan's reduced "sectors" (i.e., after cell-splitting) cannot correspond to the recited "areas" at least because the geographical distribution of traffic for the cellular network is not determined from traffic values for each of the reduced sectors.

As shown in, for example, Figs. 23a-c of Vasudevan, the size of a cell can be reduced by reducing the transmitting power of a Base Transceiver Station ("BTS"). Vasuden refers to this reduction of an existing cell size "cell-splitting." In cell-splitting, the transmitted power of a cell site is reduced in order to reduce the traffic of that cell site. *See* Vasudevan at 9:8-17. By reducing the transmitted power, the cell size can be reduced until the cell traffic of the cell is below a maximum traffic threshold value. The amount of reduction of the cell transmission power, and therefore the cell size, needed to reduce the cell traffic below the threshold value are calculated based on traffic information that has been determined based on a precise bin-to-bin mobility estimation algorithm. *See* Vasudevan at 7:19-37.

Although the size of the cell can also be reduced on a sector basis (for example, in Fig. 23c the size of only one of the three cell sectors is reduced), the reduced "sectors" cannot correspond to the recited "areas" at least because the determination of geographical distribution

of traffic is not from the traffic values of the reduced sectors. Instead, the distribution of traffic has already been determined based on the geographical distribution of traffic values of the bins. The reduced "sectors" are merely the result of a precise geographical distribution of the traffic values of the bins.

Furthermore, dependent claims 2, 3, and 5 are patentable at least because of their dependency from claim 1.

Claim 4 is not anticipated by Vasudevan

Moreover, dependent claim 4 is patentable at least because of its dependency from claim 1 and because Vasudevan does not disclose the claimed method in which outgoing handover boundaries form the boundaries of the areas.

For example, the boundaries of Vasudevan's bins are fixed. See Vasudevan at Fig. 3. Also, there is no disclosure that Vasudevan's cells are divided into sets of areas based on computed outgoing handover boundaries. *See* Vasudevan at 7:19-37.

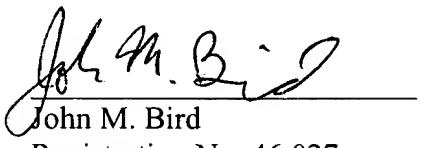
VIII. CONCLUSION

It is respectfully requested that the Board of Appeals and Interferences reverse the rejection of claims 1-5 as anticipated by Vasudevan.

Unless a check is submitted herewith for the fee required under 37 C.F.R. §41.37(a) and 1.17(c), please charge said fee to Deposit Account No. 19-4880.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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CLAIMS APPENDIX

CLAIMS 1-5 ON APPEAL:

1. A method of constructing a representation of the geographical distribution of traffic for a cellular radio network, the method comprising the steps of:

dividing each cell of said cellular network into a set of areas using information on handovers obtained from said cellular network;

determining a traffic value for each of said areas; and

determining a representation of the geographical distribution of the traffic from said traffic values.

2. A method according to claim 1, wherein the traffic value of an area depends on a handover probability associated with that area.

3. A method according to claim 2, wherein said handover probabilities are computed conjointly with said traffic values by a constraint optimization method.

4. A method according to claim 1, wherein the step of dividing each cell is made up of the following substeps:

acquiring incoming handover boundaries from best server maps provided by a management system, and

computing outgoing handover boundaries from said incoming handover boundaries,

said outgoing handover boundaries forming the boundaries of said areas.

5. A method according to claim 1, wherein the following equation is satisfied

$$\sum_{k \in J(i)} \lambda_k = t_i$$

such that J(i) is the set of indices of the areas belonging to cell i and t_i is the traffic value for cell i.

EVIDENCE APPENDIX:

Pursuant to 37 C.F.R. § 41.37(c)(1)(ix), evidence submitted pursuant to 37 C.F.R. §§ 1.130, 1.131, or 1.132 or any other evidence entered by the Examiner and relied upon by Appellant in the appeal: NONE.

RELATED PROCEEDINGS APPENDIX

Copies of decisions rendered by a court or the Board in any proceeding identified about in Section II pursuant to 37 C.F.R. § 41.37(c)(1)(ii) submitted herewith: NONE.